

Patent Claims

1. A display device (1) having a luminous element and a laterally structured luminous surface having at least one region that is capable of illumination, which device includes
5 at least two light-reflecting layers (7, 9) which are spaced apart from one another and between which light emitted by the luminous surface is reflected back and forth, at least one of the light-reflecting layers (7, 9) being semitransparent, and
10 at least one of the light-reflecting layers being arranged at a distance from the luminous element.
2. The display device as claimed in claim 1, which includes a transparent substrate (3) that has two light-reflecting
15 layers (7, 9) on opposite sides, the substrate (3) being arranged with one of these sides opposite the luminous surface of the display device (1).
3. The display device as claimed in one of the preceding
20 claims, wherein at least one of the reflecting layers (7, 9) comprises an interference reflection layer.
4. The display device as claimed in claim 3, wherein the interference reflection layer comprises alternating layers
25 with a high refractive index and a low refractive index, the layers with a high refractive index comprising niobium oxide, tantalum oxide or titanium oxide and the layers with a low refractive index comprising aluminum oxide, hafnium oxide, silicon oxide or magnesium fluoride.
- 30 5. The display device as claimed in one of the preceding claims, wherein at least one of the reflecting layers (7, 9) comprises a metallic reflection layer.

6. The display device as claimed in one of the preceding claims, wherein at least one of the light-reflecting layers comprises a dip coating, a spin coating, a sputtered coating, a PVD, CVD, PECVD or PICVD coating.

5

7. The display device as claimed in one of the preceding claims, wherein the luminous element comprises an OLED (5).

8. The display device as claimed in claim 7, wherein an electrode layer (52, 54) of the OLED (5) forms one of the light-reflecting layers (7, 9).

9. The display device as claimed in either of claims 7 and 8, wherein an electrode layer of the OLED (5) comprises a layer comprising transparent conductive oxide (TCO), in particular indium tin oxide, and a semitransparent thin metal layer and forms one of the light-reflecting layers (7, 9).

10. The display device as claimed in one of claims 7 to 9, wherein a laterally structured insulation layer (56), which covers at least a region (14) of one of the electrode layers (52, 54), is arranged between two electrode layers of the OLED (5).

11. The display device as claimed in one of claims 7 to 10, wherein at least one of the electrode layers (53, 54) of the OLED (5) is laterally structured.

12. The display device as claimed in one of the preceding claims, which has a laterally structured mask (40).

13. The display device as claimed in one of the preceding claims, wherein the light-reflecting layers (7, 9) are arranged parallel to one another.

14. The display device as claimed in one of claims 1 to 12, wherein the light-reflecting layers (7, 9) are arranged obliquely with respect to one another.

5

15. The display device as claimed in one of the preceding claims, wherein at least one of the light-reflecting layers (7, 9) is curved.

10

16. The display device as claimed in one of the preceding claims, wherein a partially absorbing material, in particular a colored material, is arranged in the beam path between the reflection layers (7, 9).

15

17. The display device as claimed in one of the preceding claims, wherein the at least one semitransparent light-reflecting layer (7, 9) has a which varies transmittance spectrally in the wavelength region of the light emitted by the luminous element.

20

18. The display device as claimed in one of the preceding claims, wherein the at least one semitransparent light-reflecting layer (7, 9) has a transmittance which varies spectrally as a function of the angle of incidence.

25

19. The display device as claimed in one of the preceding claims, wherein at least one of the light-reflecting layers (7, 9) is arranged displaceably relative to the other light-reflecting layer (9, 7).

30

20. The display device as claimed in claim 19, in which a light-reflecting layer has been applied to a transparent substrate which is arranged such that it can be displaced or positioned with respect to a first light-reflecting layer.

21. The display device as claimed in one of the preceding claims, which comprises three or more light-reflecting layers (7, 9, 11) spaced apart from one another.

5

22. The use of the display device as claimed in one of the preceding claims as an information display means of a

- motor vehicle, or
- a telecommunications device, in particular a mobile
- 10 telephone, or
- a domestic appliance, or
- a toy, or
- an advertising, warning or information board, or
- an emblem or logo.

15